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human waste disposal programmes: the place of health education

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The most serious hazard to environmental health in most areas of tropical Africa is the lack of adequate facilities for the disposal of human wastes, especially excreta. The problem is more pressing in urban areas, and Ibadan is no exception.

In an attempt to find a solution, the city has been divided in two parts: a "sewageable" area, comprised mainly of the commercial districts and suburbs, and an "unsewageable" area which includes mainly the inner core of the city, unplanned and highly congested and where most of the indigenous population lives. For this latter area, a "comfort station" programme has been devised to serve the needs for excreta disposal.

A comfort station is a building containing some "aqua privies", i.e. toilets, bathrooms and a laundry, designed to cater for 300 to 600 persons. It is constructed in the compounds of families, on land which they have agreed to provide for the purpose. A compound is a collection of houses belonging to extended family units who can be traced to one ancestral line. There is usually a recognised family head for each compound but his influence over the family members reduces as the family is becoming less homogenous. Under ideal conditions, a comfort station can be completed in about four months with a project grant of £1,800 and about £400 contributed by the family in cash or in kind. Expert labour is supplied by the project personnel and once completed it becomes the property of the contributing family or community who provided the land. Maintenance costs are also met by the owner family or community.

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The object of the survey

The survey reported here was undertaken by the Departments of Sociology and of Preventive and Social Medicine of the University of Ibadan, in connection with the building of the first three comfort stations. It involved 255 adults (16 years and above) in the compounds of Egbodi, Foko and Apena. Its general purpose was to test the effectiveness and acceptability of the programme in its early phase and to assess the benefits derived from it with a view to detecting areas and aspects requiring improvement so as to maximize results in subsequent projects.

With regard to health education, its object was to gather baseline data which could serve in developing educational objectives.

The survey was divided in two parts, designed to provide medical as well as sociological background information.

Medical data: Our aim was to assess the prevalence of infections of the oral-anal route of transmission before people started to use the comfort stations and then, at periodic intervals, after the stations have been put in service. This involved a stool examination of every member of the families concerned. No attempt was made to select representative organisms from each of the biological groups of pathogens known to be transmitted through the oral-anal route (viruses, bacteria, protozoa, helminths). Instead, we decided to use intestinal parasites as an index of the fecal contamination of the environment.

Sociological data: A questionnaire was prepared for the personal interviews which were carried out by the author and the project staff with the comfort station families. The aim was to determine: (1) people's knowledge, attitudes and beliefs with regard to excreta disposal, and (2) their motivational patterns in relation to community or self-help work.

Our assumption was that if the community had wrong traditional attitudes and beliefs about excreta disposal, the benefits to be derived from the project would be considerably reduced.

THE FINDINGS

Medical findings

The data concern only the members of the Egbodi family who were the first to build a comfort station in the city. Separate records were established for the 87 persons who lived mainly in the compound (city) and for 82 persons who lived in the village and came to the city occasionally.

The stool examinations revealed that there was no significant difference in the prevalence of roundworm among members of the family living in the city and those living in the village (85% and 86.6% respectively). A higher prevalence was recorded however for hookworm in the village (86.5%) than in town (37.9%); this should be expected since most villagers are farmers who walk barefooted on contaminated soil. Roundworm infection starts between one and two years of age; by the age of 15, as many as 89% of the villagers were found to be infected.

Sociological findings

Personal data

The majority of the respondents were illiterate (83.5%). The others had attended primary school or adult education classes; none had secondary education. The population was comprised of Christians (13.3%) and Moslems (86.7%).

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Methods of excreta disposal

Prior to the building of the comfort stations, facilities for excreta disposal were grossly inadequate in the three compounds. The few pit latrines which existed were not properly maintained and the surroundings were littered with feces, which discouraged their use. These latrines were usually located all in one area and some of the people had to walk more than 100 yards from their houses in order to reach them. Because of the scarcity of land, the comfort stations at Egbodi and Foko were located in the areas formerly occupied by these pit latrines so that the problem of uneven access to family members remained unsolved. It was therefore decided to find out how people solved this problem when they had pit latrines.

The survey revealed that 87.5% of the respondents used chamber pots for intermittent disposal of excreta before finally taking the pots to the pits. Apart from inaccessibility, there were two other reasons for this practice: fear that children might fall into the latrines or mess up the floors, and the absence of an effective mechanism for operation, maintenance and supervision, with the result that the latrines were always badly kept.

Personal hygiene

The investigation was limited to behaviour after the use of toilets, i.e. when the individual can assume the role of a mechanical carrier of organisms if he fails to take certain necessary precautions. Questions were asked on materials used for cleaning up, washing of hands, and the reasons for these practices.

The survey indicated that 237 respondents, i.e. 92.9%, cleaned themselves with water, and the others with paper (10) or other materials (8). As for the washing of hands, 253 or 99.8% claimed that they washed their hands; of these 117 did it "to keep hands clean", 44 "to prevent infection" and 91 for both reasons. The widespread use of water to clean up after easing oneself might be due to the fact that the majority of the respondents were Moslems and that such a practice is in keeping with their religion. Though this has an operational advantage in that the privies take longer to fill up than when paper and other solid materials are used, it should also be noted that soap or disinfectants are not normally used by Moslems to wash hands. Therefore, if practically all the respondents wash their hands after using the toilet, this might be done with ordinary water and the practice, however good, might not be effective against the spread of infection. This view is further strengthened by the fact that only 52.9% of the interviewees gave the correct reason for washing their hands.

The data collected indicates, then, that most people touch excreta indirectly (through the use of chamber pots) or directly (while cleaning up with water) without adequate precautionary measures to check the spread of infection. The indirect soiling of hands could be attributed to physical barriers created by improper location of sanitary facilities while the direct contamination of hands could be due to lack of adequate knowledge about how diseases spread.

Popular beliefs associated with excreta

Questions were asked about some beliefs which are current among the people of Western Nigeria. Certain beliefs are of course stronger or weaker in certain areas than in others, depending on the degree of public enlightenment. The results are shown in the table following.

SOME POPULAR BELIEFS HELD ABOUT EXCRETA

Beliefs	No. of respondents	% agree
The conservancy man can cause people to have leprosy	217	89.8
The conservancy man does not do any useful work	217	81.1
There is no harm in touching one's feces	255	23.9
There is no harm in touching the feces of one's baby	228	21.4
Dirt of the river cannot kill	207	14.0
Children may defecate anywhere: they don't need privacy	217	7.3
Nothing happened to our forefathers who had no latrines, so toilets are not important	217	6.9

As can be seen, the conservancy man is not generally regarded as a useful member of society and the dislike he inspires is reflected in the unscientific belief that he can infect people with leprosy, a much dreaded disease, if he touches them with the broom he uses for cleaning the latrine buckets. This could be a pointer to the fact that the conservancy system of excreta disposal, however justified as a result of land scarcity in these areas, is not acceptable to the people.

Quite a substantial number of persons touch feces for sentimental reasons, such as "feces, however dirty, come from our body" or when they clean their children, purely as a mark of affection. These attitudes are at variance with the views held by 93.1% of the respondents who disagreed with the statement that latrines "are not important". What could be inferred from this is that people generally believe that diseases can spread through excreta but they do not know how.

Use of public latrines

It is useful to know the attitudes of people with regard to public latrines since the comfort stations (as designed at present) are quasi-public latrines in terms of their size and the number of users, though "private" in terms of ownership. In answer to our questions, as many as 40.4% of the respondents indicated that they do not use public latrines when available for various reasons: inadequate privacy, the dirty condition of the latrines and the possibility of contracting disease.

This means that the provision of comfort stations will not necessarily result in people using them unless attitudes towards public latrines are modified. This could be achieved through (1) a design guaranteeing privacy and easy cleansing, and (2) education aimed at making people understand that the fear of contracting diseases is unjustified when proper measures are taken.

Motivational patterns

The respondents all gave the same reason with regard to their participation in the project, namely the "envisaged benefits", though most of the women added that it was because their husbands were taking part. Various definitions of "envisaged benefits" were given, but all centred on the hope that the comfort stations would solve the problems of excreta disposal in the compounds.

DISCUSSION

The survey has brought to light two kinds of barriers to the effective use and acceptability of comfort stations. The first kind results from physical and economic factors. The second is related to the knowledge, attitudes and behaviour of the people and has implications for health education.

Physical and economic barriers

Inaccessibility of the comfort station for certain people, with its resulting unhygienic practices, insufficient privacy and the lack of an adequate system to ensure cleanliness are limiting factors. In addition, there have been complaints from two families about the "high" cost of maintenance of the comfort stations in terms of water rates and electricity bills. Yet, these costs, which amount to approximately £.05 per head per month, can be considered reasonable in view of the economic status of the people. This means that people do not value the comfort stations sufficiently.

If these problems are not solved, they could hinder the realization of the hopes of the people. They might also affect the motivation of other families to embark on the building of comfort stations if they hear about the problems of their predecessors.

Educational and socio-cultural barriers

The survey made it possible to clearly diagnose some attitudes and practices as well as a lack of knowledge regarding disease transmission through human wastes which call for an educational treatment.

The following outline has therefore been developed:

Explain germ theory of disease (causes, spread and prevention)

Organize demonstrations with microscope to show that feces contain living micro-organisms which are invisible to the naked eye. Show a house-fly and indicate with visual aids how it contaminates food after touching feces. Emphasize the danger of eating food with soiled hands, of having contact with soil contaminated with feces and of eating raw food (fruit and vegetables) grown in contaminated soils. Emphasize the need for mothers to take extra care with the food of their children and vigilance at weaning period when the children begin to move about and take adult food. Make use of visual aids, demonstrations and talks.

Promote correct use of toilet facilities

Discourage the use of chamber pots for intermittent disposal of excreta. Remove fear of children falling into latrine when floor is well constructed. Encourage use of water for cleaning the body but insist that hands should be washed with soap after using the toilet. Use visual aids in and around the comfort stations to remind users of the "do's" and "don't's".

Encourage people to cooperate in cleanliness of comfort stations

Members of the community should cooperate in keeping the comfort stations clean. This could be more conveniently done by women, most of whom are housewives, than by men, and cooperation of the women in this respect could be achieved by seeking the prior approval of their husbands.

Change wrong beliefs and attitudes

Discourage the touching of feces for any reason whatsoever. Explain that the feces of a child can contain the same disease organisms as those of an adult. Remove the fear about the spread of diseases associated with public latrines. Once the system of cleaning is adequate, organize visits by members of the public to the comfort stations for purposes of comparison with the badly kept public latrines to which they have been accustomed.

Change wrong values and priorities

When land is available, discourage the use of bucket latrines and encourage the families to build comfort stations. Encourage people to contribute money for their upkeep once they are in service. Bring them to make comparisons with the higher amounts they spend on priorities of lesser importance.

Seek the support of the important members of the family

Husbands have a dominant influence in the household in Western Nigeria. This cultural fact sometimes creates problems for social investigators who find that women are seldom willing to answer questions for fear of letting out family secrets, which it is the prerogative of their husbands to do. In some families the mother-in-law is the dominating figure and in such a case, attention should be focussed on winning her over to the ideas proposed. Women's cooperation should be sought, therefore, through husbands and influential mothers-in-law.

Make use of the community organization approach

Community organization can have a major influence on the motivational patterns of the community. The project is employing a full-time community development organizer who adopted the method of working through opinion leaders in the prospective comfort station families. Once these influential leaders were identified, it was possible for the community development organizer to reach the majority of the people within a short time.

Draw on local taste and customs

The opening of a comfort station can be the occasion for publicity and promotion, and for introducing the project to the entire population. For the first three stations, the grandeur and festivity during the inauguration ceremonies were usually high enough to make a lasting impression on the minds of the people, who are very keen on ceremonies in Western Nigeria.

CONCLUSION

The comfort station is a bold step towards higher standards of environmental health in the old city area of Ibadan. At present, the few completed comfort stations can hardly do more than provide the basis for the safe disposal of human excreta and it is yet too early to measure their impact in terms of changes in the health status of the community—which, in the long run, will be the test of their effectiveness. As they increase in number however, it can be assumed that they will make a significant contribution to the health of the community.

In this connection, health education has a major role to play in creating among people who have no toilets the desire to change this situation and to take necessary action by providing land and cooperating in the construction. It has also an important contribution to make in helping overcome the many problems which constitute obstacles to the achievement of the desired results. In many cases, it should be possible to solve these problems through a sound health education programme and educational activities should form an integral part of the project.

It is particularly necessary to take health education aspects into consideration in the preliminary investigations since baseline data on the community are needed to make the right assumptions about educational objectives, i.e. what to teach, at what stage to teach it and how to teach it, in order to obtain maximum results.

Summary

In an attempt to solve the problem of human waste disposal in areas where no sewage system exists, the Ibadan authorities have developed a "comfort station" programme. These stations, which include toilets, bathrooms and a laundry, are designed to serve a population of 300-600. In connection with the construction of the first three stations, a survey was undertaken by the Departments of Sociology and of Preventive and Social Medicine of the University of Ibadan in order to collect medical and sociological data which could serve as a basis for health education.

The survey focussed on identifying some of the people's attitudes and behaviour prior to the construction of the comfort stations, namely: the methods used for excreta disposal; hygienic practices after the use of toilets (cleaning up and washing of hands); beliefs with regard to human excreta and awareness of its role in disease transmission; use of public latrines when available; and finally, the reasons for taking part in the comfort station programme (families provided the land, contributed part of the construction costs in cash or kind, and covered maintenance costs).

The survey brought to light various problems, some of a physical nature (inaccessibility of comfort stations to certain families, uncleanness, etc.), others of an economic character (too high a maintenance cost). Others yet were related to beliefs and practices (people felt there was no harm in touching feces, they washed with water but did not necessarily use soap for their hands, they disliked public latrines, etc.).

These findings pinpoint the need to integrate health education in the programme at the earliest stages of planning and to outline educational activities based on the above findings, which can then help to maximize the results anticipated from the project.

Résumé

Pour essayer de résoudre le problème de l'évacuation des déchets humains dans les quartiers d'Ibadan ne disposant pas d'un système d'égouts, les autorités ont mis au point un programme de « stations sanitaires ». Ces stations, qui comportent des toilettes, salles de bains et buanderies, sont destinées à desservir 300 à 600 personnes chacune. A l'occasion de la construction des trois premières stations, une étude a été entreprise par les Départements de Sociologie et de Médecine préventive et sociale de l'Université d'Ibadan afin de réunir des informations de caractère médical et sociologique en vue d'une action éducative.

L'étude s'est attachée à mettre en évidence les attitudes et le comportement de la population avant la construction des stations, notamment: les méthodes utilisées pour évacuer les déchets humains; les pratiques d'hygiène après avoir utilisé les toilettes; les croyances à l'égard des excreta et les connaissances concernant leur rôle dans la transmission des maladies; l'utilisation des toilettes publiques; et enfin, les raisons ayant motivé la participation au programme des stations sanitaires (les familles mettent en effet le terrain à disposition, participent à la construction et prennent à leur charge les frais d'entretien).

L'étude a permis de mettre divers problèmes en évidence. Certains sont de nature physique (difficulté d'accès des stations pour certaines familles, malpropreté, etc.) ou d'ordre économique (frais d'entretien trop élevés). D'autres sont associés aux croyances et aux pratiques sanitaires (les gens ne voient aucun mal à toucher les matières fécales, ils utilisent de l'eau pour se nettoyer mais ne se lavent pas nécessairement les mains avec du savon, enfin ils éprouvent une certaine répulsion à l'égard des toilettes publiques).

Ces données soulignent la nécessité d'intégrer l'éducation pour la santé dans la planification des programmes de stations sanitaires et de mettre au point des activités éducatives tenant compte de ces données afin de tirer le maximum de résultats du projet.

Zusammenfassung

In einem Versuch, das Problem der menschlichen Abfallbeseitigung in Gebieten zu lösen, in denen es keine Kanalisationsanlagen gibt, haben die Behörden von Ibadan ein « Bedürfnisanstalten »-Programm entwickelt. Diese Bedürfnisanstalten mit Toiletten, Waschräumen und einer Waschküche wurden so angelegt, daß etwa 300-600 Personen ausreichend versorgt werden können. Im Zusammenhang mit dem Bau der ersten drei Bedürfnisanstalten wurde von den Abteilungen für Soziologie, Gesundheitsvorsorge und Sozialmedizin der Universität von Ibadan eine Untersuchung durchgeführt, um medizinische und soziologische Daten zu sammeln, die als Grundlage für Gesundheits-erziehungsmaßnahmen dienen können.

Diese Untersuchung zielte darauf hin, die Einstellung und das Verhalten der Bevölkerung vor dem Bau der Bedürfnisanstalten zu identifizieren; das Interesse galt vor allen Dingen den üblichen Methoden der Beseitigung von Exkrementen, den hygienischen Verhaltensweisen nach der Benutzung von Toiletten (säubern und Hände waschen), den Vorstellungen über menschliche Exkremente und dem Bewußtseinsstand bezüglich deren Bedeutung bei der Übertragung von Krankheiten, der Benutzung öffentlicher Toiletten, sofern vorhanden, und schließlich den Gründen für die Beteiligung an den Bedürfnisanstalten-Programmen (Familien stellten das Land zur Verfügung, trugen mit Geld oder Sachleistungen zu den Baukosten bei und bestritten die Kosten der Unterhaltung).

Die Untersuchung brachte verschiedene Probleme zutage, die physischer (Unerreichbarkeit der Bedürfnisanstalten für manche Familien, Unsauberkeit etc.), oder wirtschaftlicher Art waren (zu hohe Unterhaltungskosten). Andere hingen mit Ansichten und Praktiken der Bevölkerung zusammen.

Diese Ergebnisse weisen deutlich auf die Notwendigkeit hin, die Gesundheitserziehung beim Bedürfnisanstalten-Programm im frühesten Planungsstadium mit einzubeziehen, Erziehungsmaßnahmen zu entwickeln, die sich auf die obigen Ergebnisse stützen und dann dazu beitragen können, die von dem Projekt erwarteten Ergebnisse zu maximieren.